Chequamegon Ecosystem-Atmosphere Study (ChEAS) Ameriflux Core Site cluster

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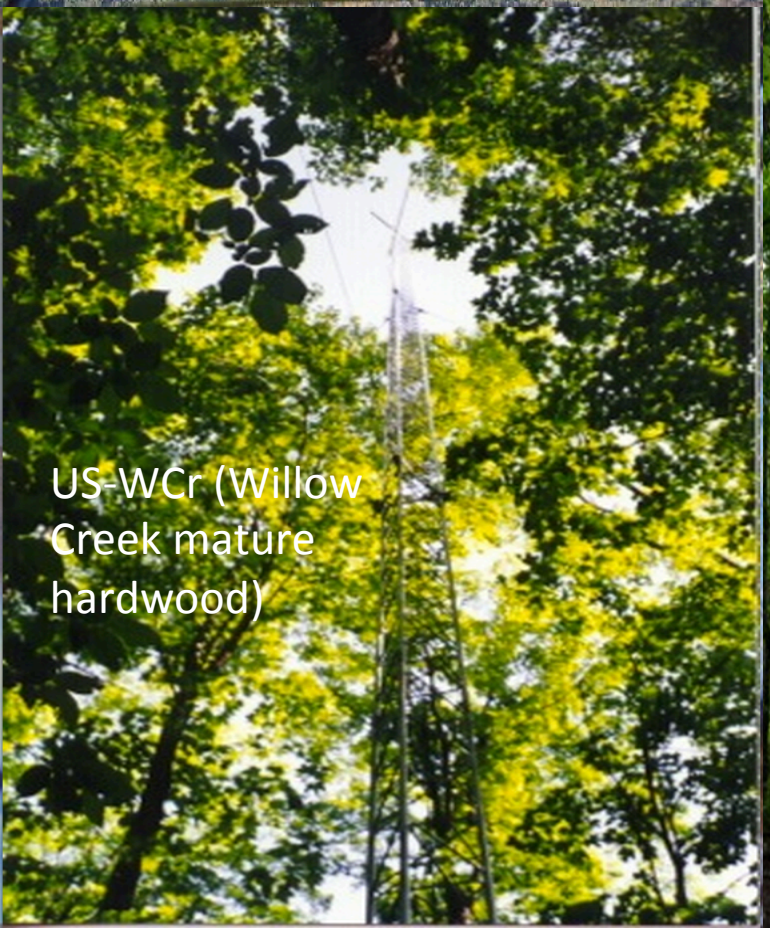
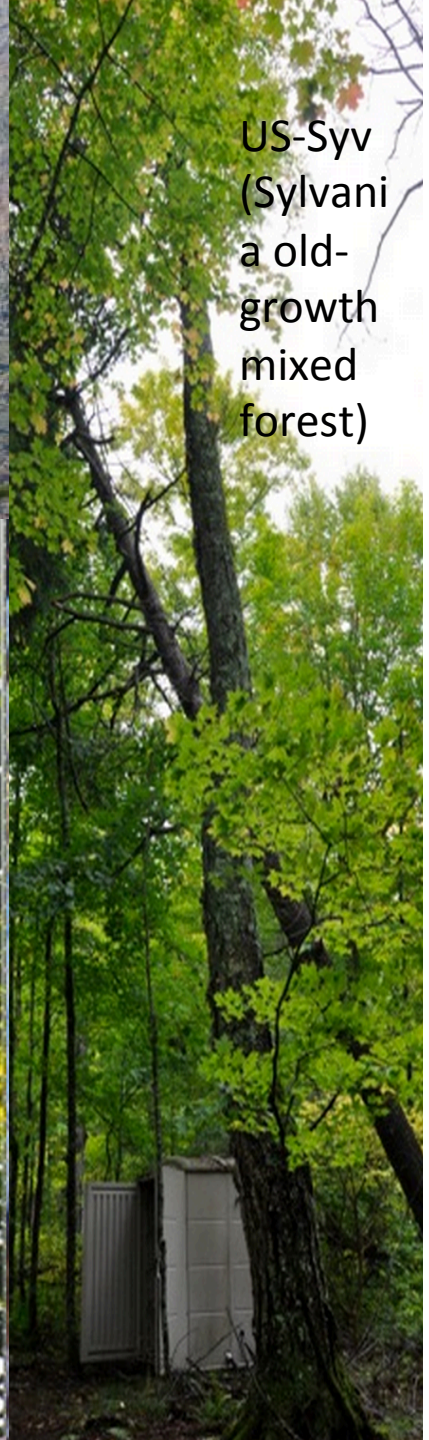
US-PFa (Park Falls WLEF very tall tower - fluxes at 30,122,396 m sampling a mix of upland/ wetland)


US-WCr (Willow Creek mature hardwood)


US-Syv (Sylvania old-growth mixed forest)


US-Los (Lost Creek shrub fen wetland)

Instrument

- 10 Hz eddy covariance data
- Licor 6262 (WCr and PFa), Licor 7200 (Syv), Licor 7700/7500 (Los), CSAT (all sites except PFa) and ATI (PFa) for sonics

Research goals

- understand the role ecosystem heterogeneity in scaling water and carbon fluxes from plot to site to region.
- The sites have been running since the late 1990s and have been used in hundreds of publications.

Team

- Ankur R. Desai (PI)
- Jonathan Thom (lead tech)
- Dan Baumann (USGS field tech)
- a number of collaborators at DOE LLNL, Penn State, U Minnesota, NASA GFSC, CalTech, Boston U, and UW.
- Sylvania is being jointly managed with Gil Bohrer and Peter Curtis (Ohio State)

Ankur is really working hard:

Disturbance

- General region was "cut-over" in the early 20th century except for Sylvania, which hasn't been cut since European settlement.
- Willow Creek site was recently a part of a larger US Forest Service thinning operation that is actively going. A portion of the canopy was removed in winter 2013-2014, and more in 2014-2015.

Data Processing

- Campbell Scientific dataloggers and PC laptops or computers at each site to store data.
- DSL Internet or Cellular 3g internet and raw data are sent every 30 minutes to our Linux server at UW.
- IDL.
- For the tall tower site, we are processing and outputting to the web daily hourly fluxes. Other sites, we are running monthly.
- Annual gap-filled fluxes for 2013 were made available a few weeks ago for Willow Creek and WLEF.
- All are data, both raw and processed are made available on our local website immediately.

Challenges

- Maintaining and serving a steady flow of biometric, ecophysiological, and component flux measurements
- regularly update the BADM.
- How to deal with formats for data like auto-chambers.
- Also, having a machine readable BADM that can be used in model-data assimilation and parameterization.
- Providing 10 Hz data in a format that is easily usable to the larger community.
- Remembering to send new data files to Ameriflux - should automate this

Challenges

- Time stamps are different.
- H2O: LI-6262, CH4: Picarro

Time stamp1: 1 2 3 4 5 6 7 8 9 10……..
Time stamp2: 1 2 3 4 5678910……..

Time stamp1: 1 2 3 4 5 6 7 8 9 10……..
Time stamp2: 1 2 3 4 5 6 7 8 9 10……..

Correct time stamp to standard time every minute and keep data loggers and multiple systems time synced

What we want from AMP

- Diagnostics and quality control of our data (both with the roving intercomparison but also with reports from submitted data).
- Troubleshooting and hot swap for instrument failure. Ingest, serving, and visualization of flux, met, and BADM data.
- Short answer - you've already done job #1 - a continued base of funding to continue tower operations.